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AGRICULTURE IS MORE THAN FARMING, A LOOK AT OPPORTUNITIES AND EDUCATIONAL NEEDS.

AMERICAN ASSN.OF TEACHER EDUCATORS IN AGRICULTURE
NATIONAL ASSN. OF AGRICULTURAL EDUC. SUPERVISORS
NATIONAL VOCATIONAL AGRICULTURAL TEACHERS' ASSN.

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DESCRIPTORS- *VOCATIONAL AGRICULTURE, *FARM OCCUPATIONS, *OFF FARM AGRICULTURAL OCCUPATIONS, EDUCATIONAL NEEDS, *EMPLOYMENT OPPORTUNITIES, *AGRICULTURE,

FARMING, INCLUDING RANCHING, IS AMERICA'S LARGEST AND MOST BASIC INDUSTRY. AGRICULTURE IS MORE THAN FARMING, INVOLVING MILLIONS OF PERSONS IN FARM-RELATED OCCUPATIONS WHO FURNISH SUPPLIES AND SERVICES TO FARMERS AND WHO MARKET, TRANSPORT, PROCESS, AND SELL FARM PRODUCED GOODS. OCCUPATIONAL OPPORTUNITIES FOR AGRICULTURALLY-TRAINED PERSONS EXTEND THROUGHOUT THE AGRICULTURAL INDUSTRY. REPRESENTATIVE OCCUPATIONS ARE (1) FARM OPERATORS, (2) FARM MANAGERS, (3) SERVICE PERSONNEL, (4) PRODUCT DEVELOPMENT ENGINEERS AND SCIENTISTS, (5) PROVIDERS OF FINANCE, (6) EDUCATION, REGULATORY, AND ADVISORY PERSONNEL, (7) PROCESSORS OF FARM GOODS, AND (8) CONTRACTORS AND BUYERS OF FARM PRODUCTS. NEARLY 10,000 HIGH SCHOOLS IN THE UNITED STATES OFFER VOCATIONAL AGRICULTURE INSTRUCTION UNDER A PROGRAM FINANCED COOPERATIVELY BY FEDERAL, STATE, AND LOCAL GOVERNMENTS. VOCATIONAL AGRICULTURE EMBRACES SCIENCE, TECHNOLOGY, AND MANAGEMENT, PROVIDES LEADERSHIP TRAINING THROUGH THE FUTURE FARMERS OF AMERICA ORGANIZATION, AND SERVES (1) HIGH SCHOOL STUDENTS PREPARING TO FARM, ENTER OFF-FARM AGRICULTURAL OCCUPATIONS, OR PURSUE ADVANCED STUDY IN AGRICULTURAL COLLEGES, (2) YOUNG MEN OUT OF SCHOOL WHO ARE STRIVING TO BECOME ESTABLISHED IN FARMING, AND (3) FARMERS AND FARM WORKERS WHO WISH TO IMPROVE THEIR PROFICIENCY. A CHART GIVING INFORMATION ABOUT SEVEN AREAS OF AGRICULTURE IN EACH STATE IS INCLUDED. THIS DOCUMENT IS AVAILABLE FOR 15 CENTS FROM THE FUTURE FARMERS' SUPPLY SERVICE, P.O. BOX 1160, ALEXANDRIA, VIRGINIA. (WB)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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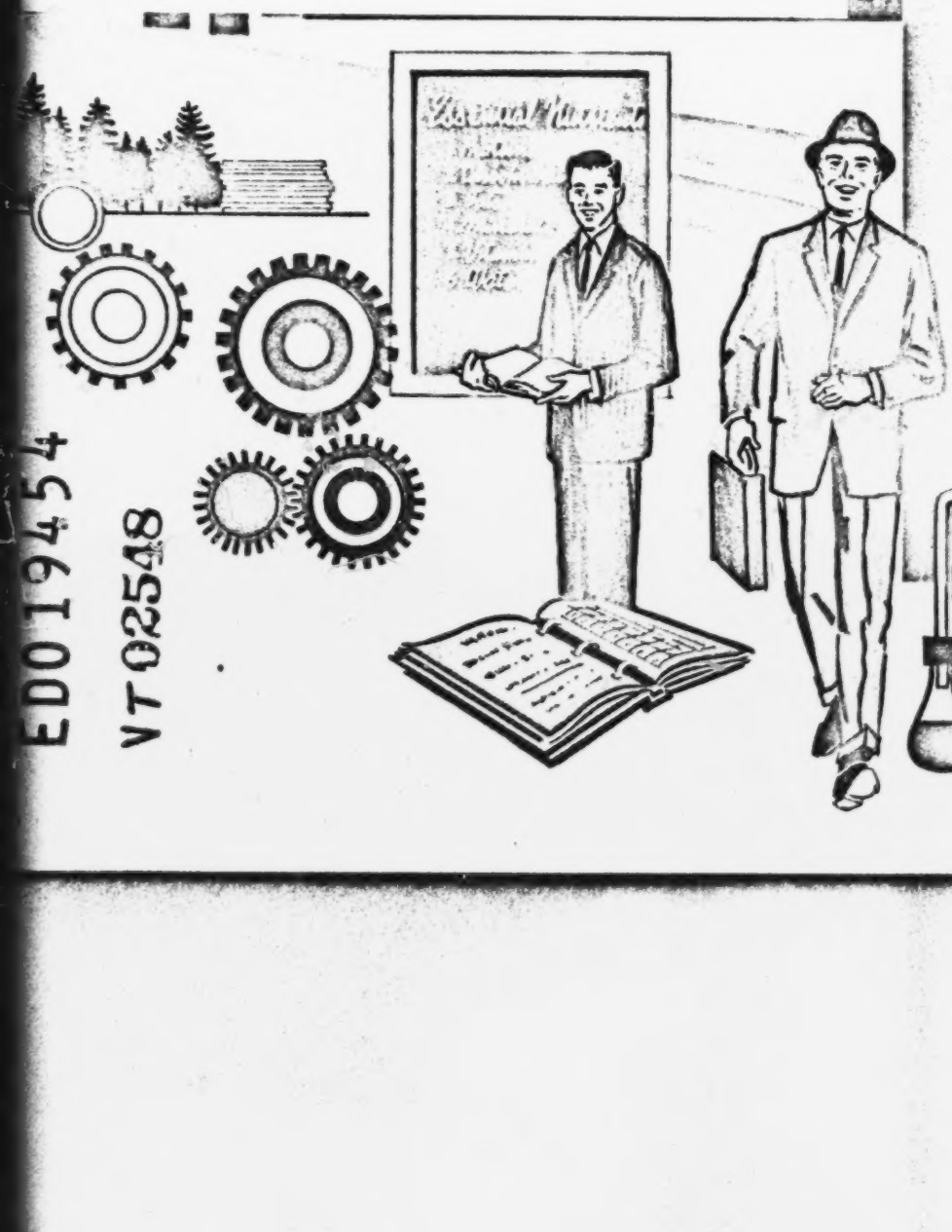

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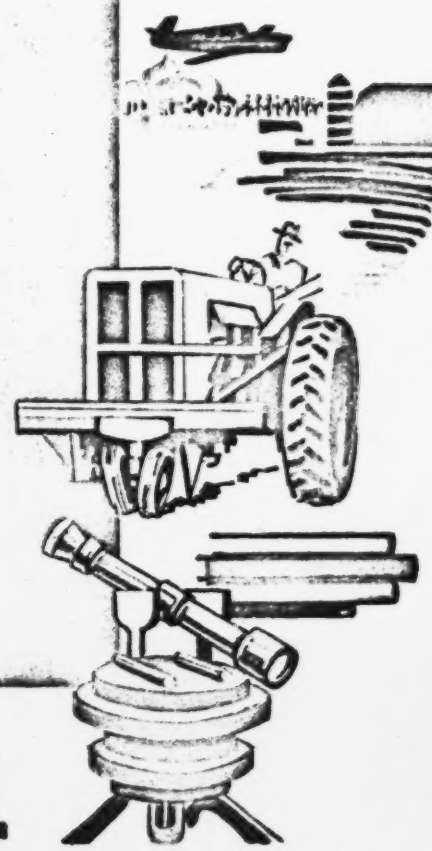
AGRICULTURE IS **MORE** THAN FARMING

. . . a look at opportunities and educational needs



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"Digest of Annual Reports of State Boards For Vocational Education"–U. S. Office of Education
"1960 Census of Population"–U. S. Dept. of Commerce

AGRICULTURE IS MORE THAN FARMING

Some people use the term "Agri-Business" and include all the occupations that are related to farming. The chain of agriculture starts with the suppliers to farmers—those who manufacture and sell such things as machinery, fertilizers, chemicals, and feed; or who provide credit, insurance, and technical services. Farmers are the center link. They are the producers of raw material. The next step is marketing, then processing, transportation, and distribution. The entire agricultural complex employs many millions of people. A substantial part of these need education in agriculture. For the purposes of this booklet, the agricultural occupations to be discussed will be limited to those which require a knowledge of farming.

THERE IS A BROAD HORIZON OF OPPORTUNITIES IN AGRICULTURE

The farm boy, with his rich experience of rural life and work on the farm, has a built-in advantage for gainful occupation in the broad field of agriculture. The opportunities are there, and they will remain in the future. The farm boy is limited only by (1) his willingness and ability for self-advancement; and, (2) the EDUCATIONAL OPPORTUNITIES that are available to him. Thousands of talented farm boys are "counseled out" of agriculture each year, to their lifelong detriment. Likewise, many schools in urban areas consider "agriculture not for us" when hundreds of opportunities exist in the locality for agriculturists to serve the gardening and landscaping needs of home owners, business establishments, and public facilities, or to work in firms that deal with farmers. Many urban youth enter agricultural occupations.

"So long as freedom from hunger is only half achieved—so long as two-thirds of the nations of the world have food deficits —no citizen, no nation can afford to feel satisfied or secure. We have the ability, we have the means, and we have the capacity to eliminate hunger from the face of the earth. We need only the will."

JOHN F. KENNEDY
President of the United States

"Certainly, by increasing the productivity of farmers and by enabling agriculture to release labor to the nonfarm sectors of the economy, the agriculture education programs have made it possible for our society to enjoy unparalleled variety and volume of nonfarm goods and services as well as an abundance of food and fiber."
—From "Report of the President's Panel of Consultants on Vocational Education"—1963

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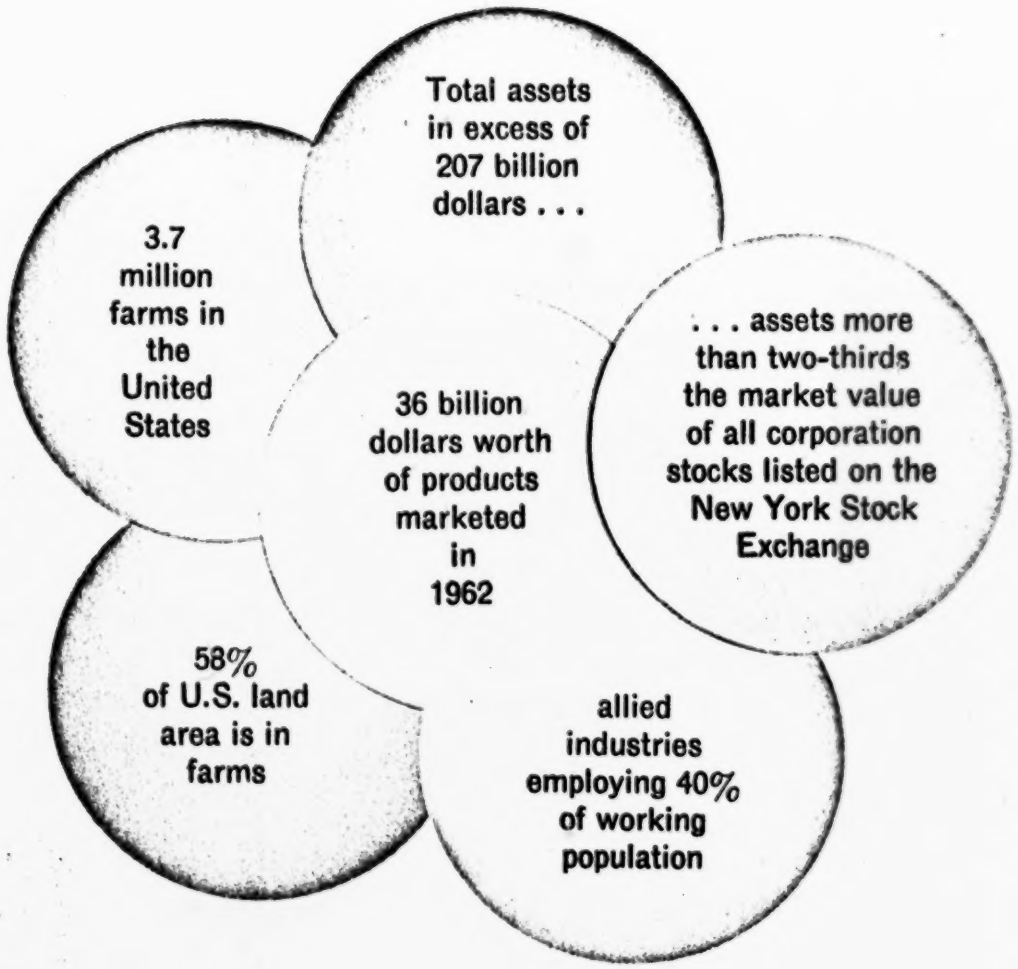

Total assets in excess of 207 billion dollars . . .
3.7 million farms in the United States
. . . assets more than two-thirds the market value of all corporation stocks listed on the New York Stock Exchange
36 billion dollars worth of products marketed in 1962
58% of U.S. land area is in farms
allied industries employing 40% of working population

Occupations in farming might be listed as follows:

- Farm Operators
- Farm Managers
- Full Time Hired Farm Labor
- Part Time Farmers
- Seasonal Hired Farm Labor

The most attractive opportunities for employment in farming exist within the first three categories where it is estimated there are at least 60,000 desirable openings a year. All three groups need sound education in agriculture prior to their entry into the field, with continuing education to help them keep abreast of the rapidly changing technological and management aspects of farming.

Part-time farmers earn some of their income off the farm. Even though their farming operation may be small, it needs to be efficient if it is to accomplish the purpose of furnishing a part of the family living. Many young men use part-time farming as a "stopgap" means of maintaining farming interest and knowledge while they are building equity for entrance into farming on an efficient, full-time basis.

The educational requirements for seasonal hired farm laborers vary considerably according to the kind of work they are expected to do. For example, those who operate farm machinery need considerable technical training and there is demand for their services at good wages. As farming becomes increasingly mechanized, there will be more need for the skilled and trained farm workers.

AGRICULTURISTS PROVIDE SUPPLIES USED BY FARMERS

Farmers each year purchase more than 25 billion dollars worth of production items; that is, supplies needed by farmers in their production of crops and livestock and for conservation of land and water resources. These are bought from local suppliers. Agricultural occupations among the suppliers to farmers include these types of people:

- Product Development Engineers and Scientists
- Manufacturing Management Personnel
- Sales Personnel including Advertising and Promotion
- Service Personnel

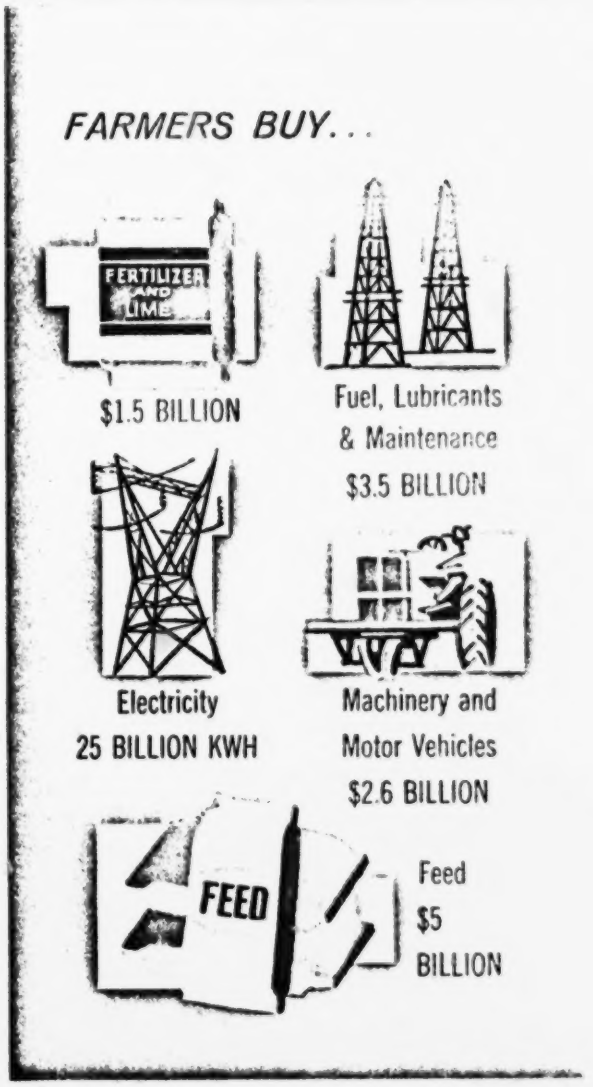
Obviously, the product development engineers and scientists must be college graduates, usually with advanced degrees. In order to know *what* to develop, however, a background in farming and agricultural education is beneficial. They are *agricultural* scientists.

In the case of each supplier, someone in management must have enough knowledge of farming and farm conditions to determine whether or not products developed by the engineers and scientists can be manufactured and sold at a price that will provide a margin of profit for both farmer and manufacturer. Manufacturers employ a host of economists and other agricultural specialists for this work.

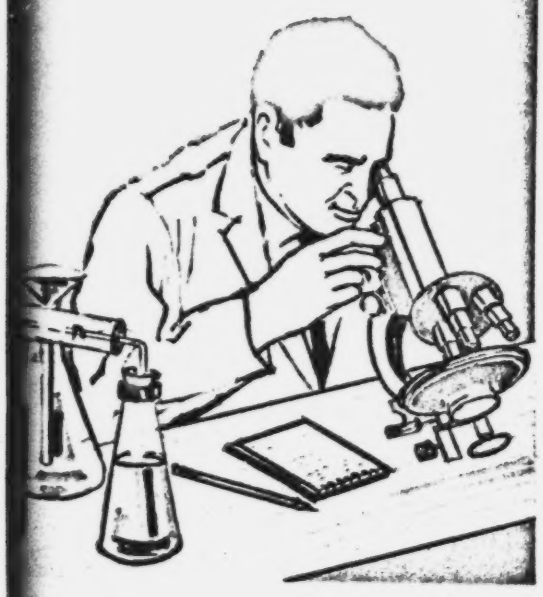
The field of agricultural sales, including advertising and promotion, provides lucrative occupations for many people, and the demand is growing. In the top segment of this group, most are college graduates. However,

their college education has been in the broad area of their specialty. The background of farm life and the study of agriculture in high school, especially the leadership training gained through the Future Farmers of America organization, is a valuable asset. Also, among the sales group are many who work on a local basis and who enter the occupation without college preparation. They deal directly with farmers, and need to know farm conditions. In addition to vocational agriculture and FFA in high school, specialized training in sales work and business management would be helpful for them.

In the area of service personnel for suppliers to farmers, the largest field of employment is for people who service and repair farm machinery and equipment. In addition to required mechanical skills, their service to farmers is enhanced if they are thoroughly familiar with the farm conditions under which the machinery is used. In this general occupational field also are highly skilled technicians, usually agricultural college graduates, who work directly with farmers and dealers to assist in the most efficient utilization of their product. Their work might be called a combination of advisory, public relations, and trouble shooting. Producers and distributors of fertilizers and farm chemicals, feeds, petroleum products, electricity, and other input items of farming are on the constant lookout for men who are technically and professionally qualified for this kind of employment.



AGRICULTURISTS PROVIDE SERVICES TO FARMERS



The farmer of today is surrounded by a host of assistants. Their jobs require a knowledge of farming, even though they may not be farmers. There are hundreds of occupations in this category. They may be grouped as follows:

- Providers of Finance
- Providers of Technical Services
- Education, Regulatory and Advisory Personnel
- Providers of Facilities

The capital requirements of farming is high, averaging about $24,000 per farm worker. Farmers depend heavily on Production Credit Associations, banks, and other lending institutions for both short term and long term financing. The lending institutions require the services of farm loan advisers who are knowledgeable of farming, in order to assure wise investment of these funds. Others who might be considered in this field are insurance salesmen who provide special programs for farmers, real estate dealers specializing in farm land transfer, and tax advisers.

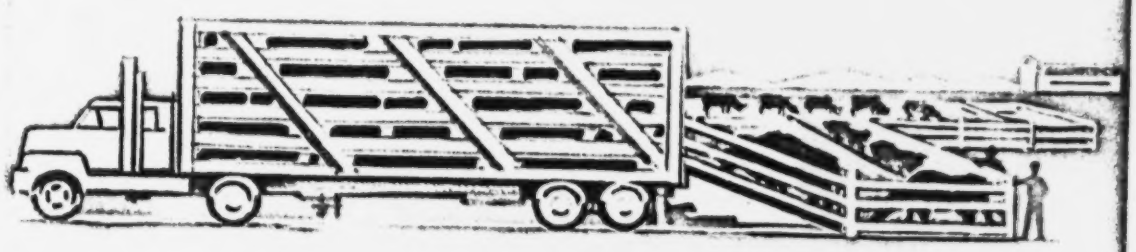
Many opportunities exist in educational, regulatory, and advisory services for farmers. Most such jobs require agricultural college degrees. The demand is increasing and there is a shortage of qualified personnel. Teachers of vocational agriculture, county agricultural agents, experiment station scientists, and inspectors of seed, feed, grain, and milk comprise just a few of many occupations in this field. Farm news writers, farm radio and TV directors, and personnel employed by farm organizations are others. Government agencies also employ many technicians in the regulatory category

who have a farm background but not necessarily a college degree.

The area of technical services to farmers includes such people as veterinarians, soil conservation technicians, foresters, dairy herd improvement association testers, artificial inseminators, and farm record and analysis experts. Some of the technical services personnel are college graduates, others are men who have studied agriculture in high school and then completed additional specialized training for their work.

As farms have grown in size and complexity, and as the number of farm workers has declined, there has come to the fore a group of people who provide facilities that farmers purchase. Probably the largest group among these are the custom operators who own specialized machinery and equipment with which they perform vital parts of farm work without the necessity of the farmer having this additional capital outlay for machinery. A recent survey showed 368,000 persons engaged in custom work for at least a part of the year. Combining of wheat is a custom job of long standing, employing about 50,000 workers each year. Other typical custom jobs are hay baling, machine cotton picking, corn picking, land clearing, land leveling, and plowing. There has been a great increase in the number of custom operators who apply lime, fertilizers, and insecticides. As an example of one small group working in this field, it is reported that more than 5,000 aircraft are employed for applying chemicals and seeds on farms and ranches. Many part-time farmers engage in custom operation.

AGRICULTURISTS HANDLE THE PRODUCE OF THE FARMS



The Department of Agriculture estimates that more than 10 million workers are engaged in transporting, processing, manufacturing and selling farm goods. A very important and vital segment of these are agriculturists. They might be grouped as follows:

- Farm to Market Transporters
- Contractors and Buyers of Farm Products
- Salesmen Representing Farmers
- Processors of Farm Goods

More than $36 billion worth of farm products are marketed each year. It requires a large force of workers just to move this material from the farm to the market place. Farmers haul much of their own produce but in many

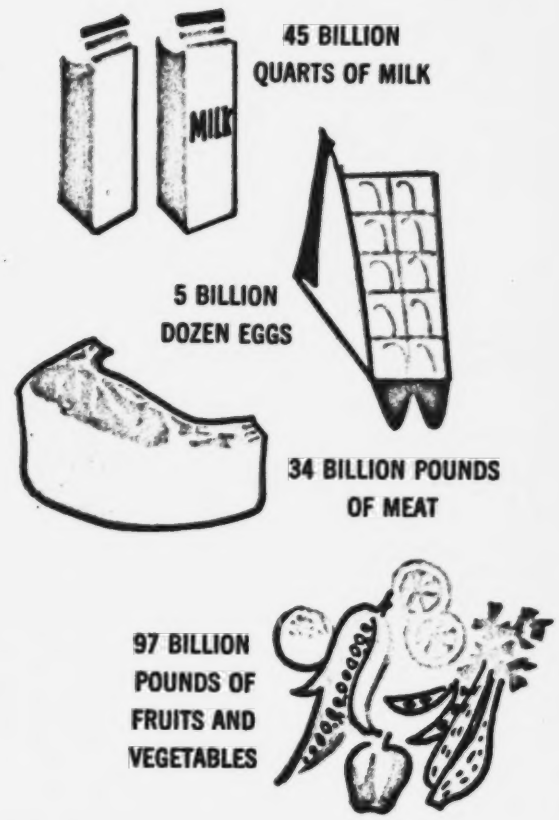
cases others are employed to do this work. Such transporters usually have less than a college education. They need to be thoroughly familiar with the produce they are hauling. The perishable crop, livestock, or livestock product in their care can be seriously damaged by careless handling. Knowledge about the characteristics of such product would be gained through the study of vocational agriculture in high school.

Buyers and contractors of farm products are highly skilled personnel who must combine a knowledge of the product they buy with a thorough familiarity of the market demands and supply outlook. Whether they have a college degree or not, a high school education in vocational agriculture would be valuable to them.

Salesmen representing farmers may be persons working on a commission basis, or employed by cooperatives and other farm groups to represent them. Their qualifications are quite similar to those of the buyers and contractors. There are many well paying positions in this field.

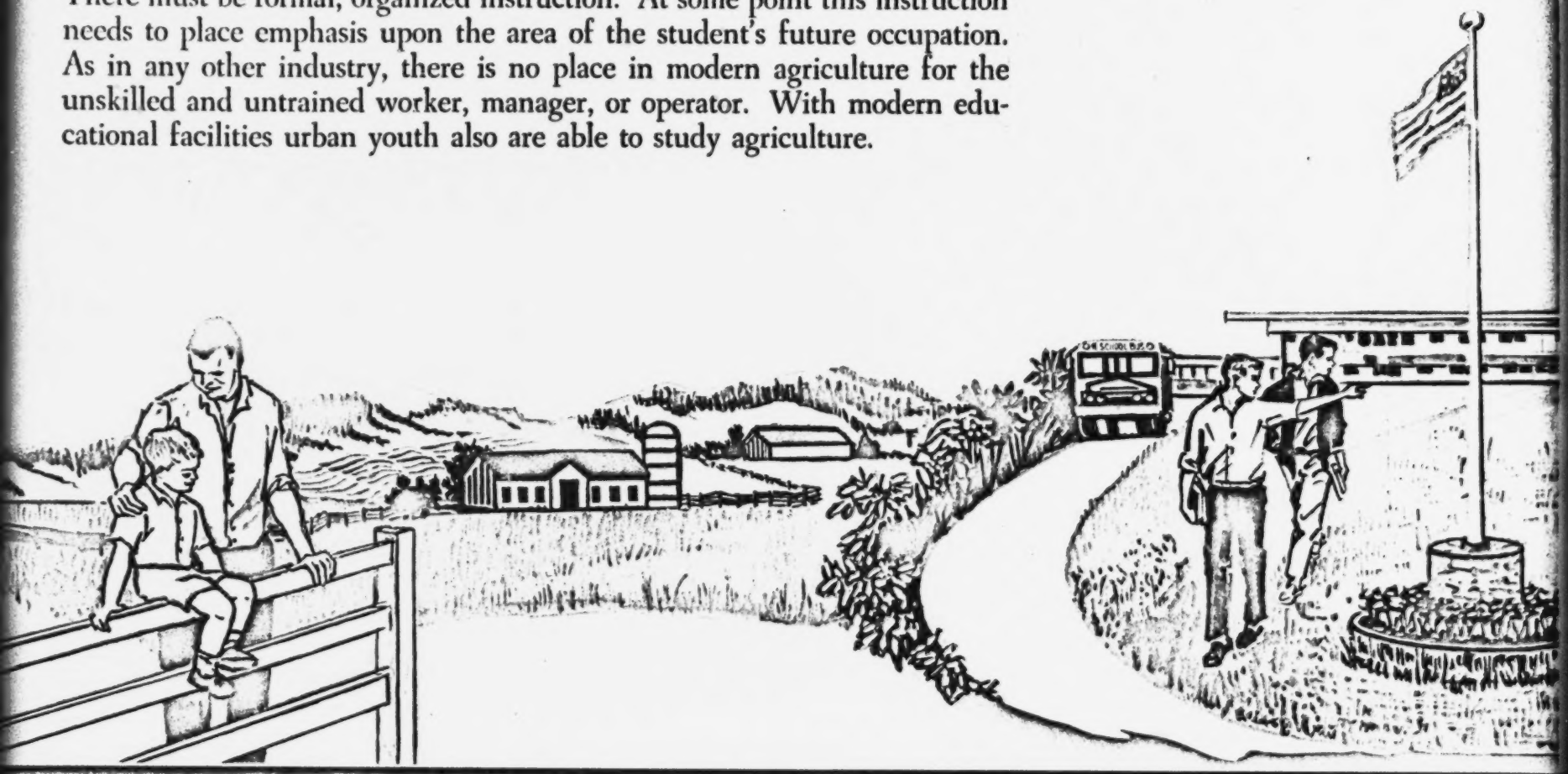
Processors of farm goods employ many of the contractors and buyers mentioned above. They also require the services within their processing plants of persons who are knowledgeable about the product. Such personnel exercise quality control, determine efficient uses of by-products and plan operations of plants to coincide with the cyclical flow of goods from the farm. Many processors employ agriculturists to work directly with farmers in helping them to attain the quality of produce that consumers want.

A FEW EXAMPLES OF ANNUAL U.S. FOOD CONSUMPTION . . .



SCHOOLS ARE IMPORTANT

For the farm boy, education in agriculture begins as soon as he learns to toddle and observe the things about him. But observation is not enough. There must be formal, organized instruction. At some point this instruction needs to place emphasis upon the area of the student's future occupation. As in any other industry, there is no place in modern agriculture for the unskilled and untrained worker, manager, or operator. With modern educational facilities urban youth also are able to study agriculture.

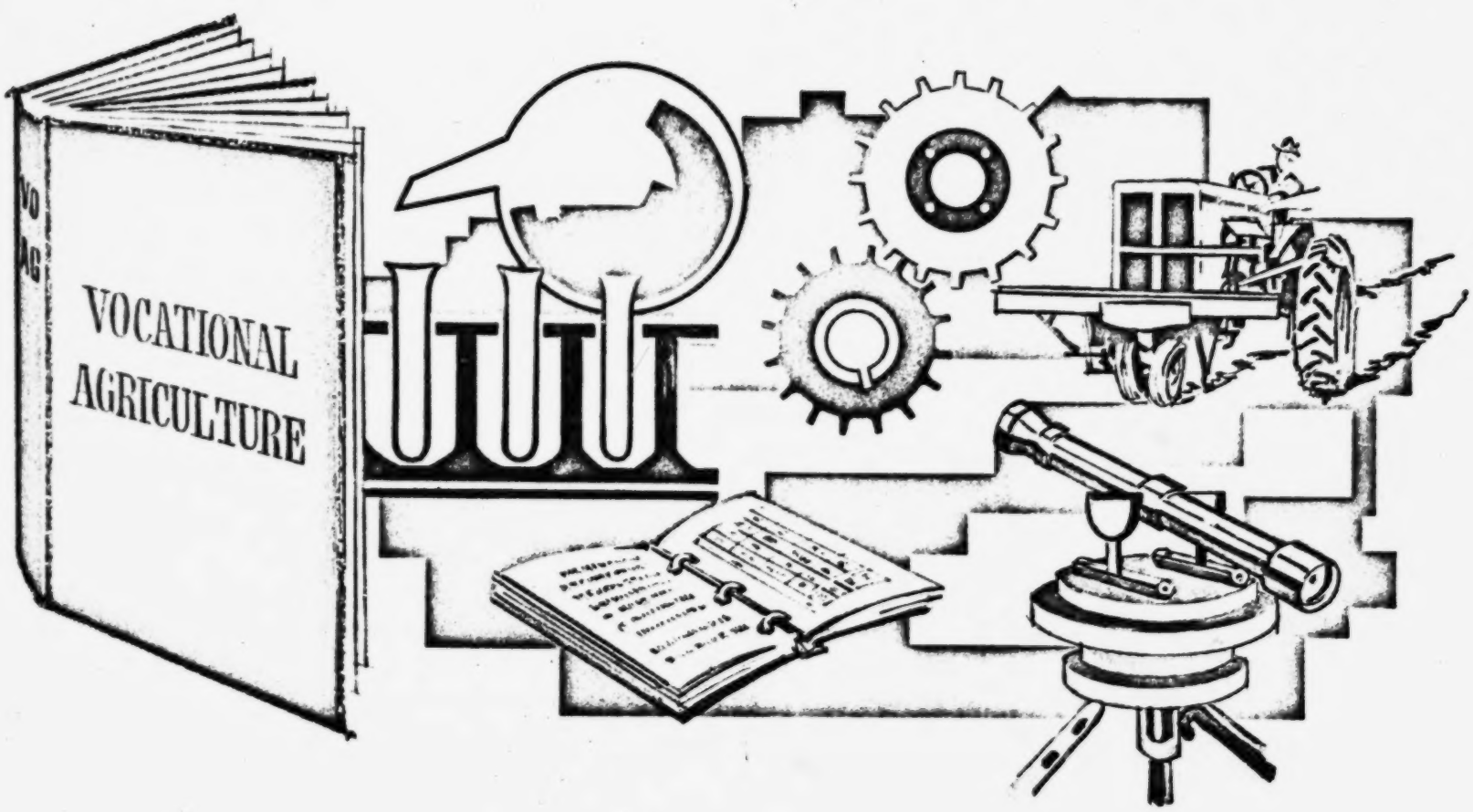


AGRICULTURAL INSTRUCTION BEGINS IN HIGH SCHOOL

Nearly 10,000 high schools in the United States offer instruction in vocational agriculture under a program financed cooperatively by Federal, State, and local governments. Unfortunately, in about half the nation's schools this instruction is not available. Every year, thousands of young people enter agricultural occupations without the benefit of systematic training in their field. Their chances for success would be considerably enhanced if they had the advantage of vocational education in agriculture. In addition, it is likely that emerging concepts of vocational agriculture will permit the offering of more specific instruction for occupations in non-farming agricultural fields.

For those students planning continued education, repeated research has shown conclusively that those who studied vocational agriculture in high school do equally as well in college, or better in many cases, as compared with their fellow students who took regular college preparatory courses. This holds particularly true when college study is in the field of agriculture.

VOCATIONAL AGRICULTURE EMBRACES **SCIENCE,**



ECHNOLOGY AND MANAGEMENT

The very nature of modern agriculture requires that the student receive training in the sciences that involve animals, plants, and soils. Principles of breeding, of feeding, of disease and insect control are included. Practical instruction in the sciences of plant and animal growth is a part of vocational education in agriculture. The training extends further to give emphasis to such technological phases as selection, operation, care, and maintenance of farm machinery, and mechanical skills needed on the farm. In each school, instruction is designed to meet the needs of the students for gainful occupation in agriculture. Interrelated with both the science and the technology is the overriding subject of management. Students keep records on the supervised farming programs they are required to conduct. Record analysis, and decision making on the basis of records is emphasized. Most students also complete the other basic high school courses that qualify them for college entry.

Whatever a vocational agriculture student's future occupation, the studies in science, technology, and management will be valuable. The ability to make decisions, and the willingness to accept responsibility are prerequisites to success in any worthwhile career.

VOCATIONAL AGRICULTURE

INCLUDES

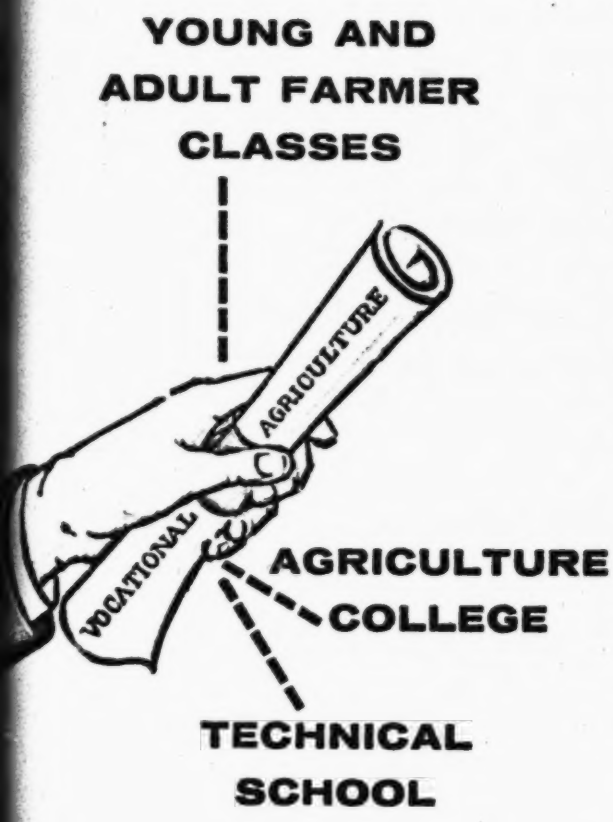
LEADERSHIP TRAINING

The Future Farmers of America is a voluntary membership organization of boys who are students of vocational agriculture. It supplements the regular instruction by providing opportunities for leadership development and cooperative activities. Many programs of the FFA are designed to stimulate the students in their study and work toward successful agricultural careers. The FFA has been an important factor in maintaining student interest in school, thus contributing to lessening of the dropout problem.

Incentive awards are provided through the FFA Foundation for superior achievement. In nearly all walks of American life, there are men in positions of outstanding leadership who attribute a great deal of their success to early training gained through the Future Farmers of America.

He is a well-rounded individual with basic preparation for a wide horizon of agricultural occupations. He is trained in the sciences, skills, and management aspects of agriculture. His high school curriculum generally has been such that upon graduation he is qualified for college entry. He is developed in poise, is self-confident, and able for leadership. He has a sense of responsibility for his family, his community, and his country. Scholarship, cooperation, good citizenship, and patriotism are developed through the FFA.

AGRICULTURAL EDUCATION **EXTENDS BEYOND** HIGH SCHOOL



Agricultural education is a continuing process. Much progress is being made toward the provision of instruction in vocational agriculture beyond the high school. Some of this is done in area schools or in junior or community colleges. These institutions are able to offer highly technical training in specific agricultural subjects, since they draw students from a relatively large area. Several States now have such schools, and others are planning them. They offer an opportunity for the high school graduate who has no college or farming plans to learn specialized skills leading to gainful employment in an agricultural occupation.

High school teachers of vocational agriculture also conduct organized classes for young farmers who are striving to become successfully established, and for older, established farmers or farm workers who wish to improve their proficiency. Modern farming is a dynamic, changing occupation. Continuing education is a necessity for farmers or farm workers who wish to improve their status in this highly competitive and challenging industry. Instruction usually places heavy emphasis on the management aspects of farming. Schools conducting these programs help farmers to improve their income, thus generating economic gain for the entire community. On a nationwide basis, enrollment in young farmer and adult farmer classes is nearly as high as among the day school group, but much expansion is needed in this area.

AGRICULTURE IS VITAL TO AMERICA

Farming is America's largest and most basic industry

Agriculture is more than farming, involving millions of persons who furnish supplies and services to farmers and who market, transport, process and sell farm produced goods throughout the world

Occupational opportunities for agriculturally trained persons extend throughout the broad industry of agriculture

VOCATIONAL EDUCATION IS VITAL TO AGRICULTURE

Vocational education in agriculture serves:

- High school students preparing to farm
- High school students preparing for direct entry into off-farm agricultural occupations and those who will take additional technical training
- High school students planning advanced study in agricultural colleges
- Young men out of school who are striving to become established in farming
- Farmers and farm workers who wish to improve their proficiency

AGRICULTURE

State	Number of Farms	Acres in Farming	% Total Land Area in Farms	Value of Farms (Land & Bldgs.)	1962 Value of Farm Marketings	No. of Vo-Ag Depts.	Vo-Ag Enrollment (H.S.)
Alabama	109,000	16,600,000	51.0	$ 1,798,500,000	$ 538,000,000	341	18,446
Alaska	400	900,000	0.2	22,000,000	4,000,000	1	29
Arizona	7,600	45,000,000	55.0	2,477,600,000	507,000,000	34	1,780
Arkansas	90,000	17,500,000	49.0	2,196,000,000	778,000,000	335	17,355
California	102,000	39,000,000	37.0	16,626,000,000	3,300,000,000	230	13,442
Colorado	35,000	41,000,000	58.0	2,481,500,000	625,000,000	67	2,101
Connecticut	8,500	1,000,000	28.0	484,500,000	143,000,000	19	508
Delaware	5,400	800,000	60.0	210,060,000	102,000,000	25	790
Florida	47,000	17,000,000	44.0	4,418,000,000	837,000,000	151	12,411
Georgia	100,000	21,000,000	53.0	2,430,000,000	757,000,000	356	26,982
Hawaii	6,800	2,600,000	60.0		283,000,000	21	1,000
Idaho	36,500	15,000,000	29.0	1,971,000,000	450,000,000	73	3,716
Illinois	151,000	31,000,000	85.0	10,101,900,000	2,200,000,000	471	15,005
Indiana	126,000	19,200,000	80.0	5,229,000,000	1,200,000,000	313	11,692
Iowa	178,000	35,000,000	94.0	8,900,000,000	2,600,000,000	283	10,069
Kansas	105,000	50,000,000	96.0	5,869,500,000	1,300,000,000	194	6,143
Kentucky	150,000	18,000,000	67.0	2,805,900,000	621,000,000	196	12,614
Louisiana	74,000	11,000,000	36.0	2,086,800,000	430,000,000	300	16,773
Maine	17,700	3,300,000	16.0	316,830,000	185,000,000	26	1,101
Maryland	25,600	3,600,000	55.0	1,199,872,000	283,000,000	54	3,001
Massachusetts	11,700	1,200,000	23.0	464,946,300	156,000,000	22	1,176
Michigan	111,000	14,800,000	41.0	3,223,773,000	739,000,000	231	12,099
Minnesota	152,000	32,400,000	60.0	5,251,296,000	1,500,000,000	285	13,787
Mississippi	125,000	19,000,000	62.0	2,485,000,000	697,000,000	314	15,464
Missouri	170,000	36,000,000	75.0	4,318,000,000	1,200,000,000	260	11,746

IN YOUR STATE

	Number of Farms	Acres in Farms	% Total Land Area in Farms	Value of Farms (Land & Bldgs.)	1952 Value of Farm Products	No. of Ag Deals	Ag Exports (Thousand $)
Montana	31,200	67,000,000	69.0	$ 2,652,000,000	$ 428,000,000	59	2,264
Nebraska	88,000	48,000,000	97.0	4,715,832,000	1,300,000,000	138	4,769
Nevada	2,400	8,700,000	16.0	408,984,000	46,000,000	12	339
New Hampshire	6,200	1,200,000	20.0	143,821,400	55,000,000	17	468
New Jersey	14,600	1,400,000	29.0	829,411,400	285,000,000	31	1,191
New Mexico	16,700	52,000,000	60.0	1,359,630,500	265,000,000	56	2,221
New York	80,000	14,000,000	44.0	2,218,960,000	852,000,000	281	8,922
North Carolina	200,000	17,400,000	51.0	3,822,200,000	1,100,000,000	572	35,596
North Dakota	53,000	42,000,000	93.0	2,683,072,000	614,000,000	59	2,397
Ohio	139,000	18,800,000	71.0	5,000,664,000	1,000,000,000	328	11,330
Oklahoma	95,000	37,000,000	81.0	3,736,065,000	646,000,000	387	18,378
Oregon	45,500	21,000,000	35.0	2,326,278,500	430,000,000	87	3,953
Pennsylvania	96,000	12,000,000	41.0	2,605,824,000	799,000,000	262	9,918
Rhode Island	1,400	100,000	20.0	68,269,600	23,000,000	10	452
South Carolina	77,000	9,700,000	47.0	1,550,472,000	389,000,000	303	13,256
South Dakota	56,200	45,000,000	92.0	2,620,044,000	679,000,000	77	3,086
Tennessee	159,000	16,000,000	60.0	2,576,436,000	522,000,000	296	19,715
Texas	224,000	154,000,000	85.0	14,548,800,000	2,500,000,000	1,047	42,548
Utah	17,400	13,600,000	24.0	888,061,200	166,000,000	46	3,095
Vermont	12,400	3,100,000	50.0	289,354,000	125,000,000	22	660
Virginia	96,000	13,300,000	52.0	2,262,240,000	498,000,000	234	12,676
Washington	54,000	18,200,000	44.0	2,847,474,000	576,000,000	145	7,660
West Virginia	42,000	6,500,000	39.0	521,346,000	99,000,000	104	4,928
Wisconsin	133,000	22,000,000	60.0	3,204,236,000	1,100,000,000	276	15,747
Wyoming	10,000	36,000,000	58.0	957,550,000	157,000,000	54	1,422